CALIFORNIA ENERGY COMMISSION
1516 NINTH STREET
SACRAMENTO, CA 95814-5512

DATE: December 4, 2003

TO: Interested Parties

FROM: Connie Bruins, Compliance Project Manager

SUBJECT: **Tracy Peaker Power Project (01-AFC-16C)**
Staff Analysis of Proposed Modifications
To Air Quality Conditions of Certification

On September 26, 2003, the California Energy Commission (Energy Commission) received a request from GWF Energy LLC (GWF), to modify the Tracy Peaker Power Project.

The Tracy Peaker Power Project is a nominal 169 MW natural gas-fired power plant that began commercial operation on June 1, 2003. The facility is located in an unincorporated portion of San Joaquin County, southwest of the City of Tracy, within the boundaries of the San Joaquin Valley Air Pollution Control District.

The proposed modifications will allow GWF to substitute a slightly larger, 300 kilowatt (kW) emergency diesel engine for the 250 kW emergency diesel engine that was originally licensed. Other than emergency operation, the engine will only be operated up to 200 hours per year for maintenance and testing purposes. Although both oxides of nitrogen (NOx) and sulfur dioxide (SO_2) mass emissions will increase slightly, staff's analysis indicates that there will be no significant impacts and that the emissions increases are fully mitigated. The emissions of carbon monoxide, volatile organic compounds and particulate matter (CO, VOC and PM10) will decrease, despite the larger-sized generator, because the larger engine is a "cleaner," Air Resources Board-Certified Clean Diesel engine.

The engine substitution was approved by the San Joaquin Valley Air Pollution Control District on September 11, 2003.

Energy Commission staff reviewed the proposed petition and assessed the impacts of this proposal on environmental quality, public health and safety. Staff proposes revisions to existing conditions of certification for Air Quality (AQ) -71 through AQ-74, and the deletion of AQ-68. It is Commission staff's opinion that, with the implementation of revised conditions, the project will remain in compliance with applicable laws, ordinances, regulations, and standards and that the proposed modifications will not result in a significant adverse direct or cumulative impact to the environment (Title 20, California Code of Regulations, Section 1769).

The amendment petition has been posted on the Energy Commission's webpage at www.energy.ca.gov/sitingcases. Staff's analysis is attached for your information and review. Staff's analysis and the order (if the amendment is approved) will also be posted on the webpage. Energy Commission staff intends to recommend approval of the petition at the January 21, 2004 Business Meeting of the Energy Commission. If you have comments on this proposed project change, please submit them to me at the address above prior to January 21, 2004. If you have any questions, please call me at (916) 654-4545 or e-mail at cbruins@energy.state.ca.us.

Attachment

GWF Tracy Peaker Project (01-AFC-16)
Staff Analysis: Petition to Change Specified Emergency Diesel Engine

Prepared by: Gabriel D. Taylor

AMENDMENT REQUEST

GWF Energy, LLC (GWF) requests modifications to Air Quality (AQ) Conditions of Certification AQ-71 through AQ-74 for the Tracy Peaker Project (TPP) to reflect the installation of a larger diesel-powered emergency generator (from 382 bhp [250 kW] to 471 bhp [300 kW]) and the deletion of AQ-68 which restricts the operation of the engine to no more than 11 hours per day.

BACKGROUND

The Tracy Peaker Project is a nominal 169 MW natural gas-fired power plant located in an unincorporated portion of San Joaquin County, southwest of the City of Tracy. The project received final approval from the California Energy Commission (Energy Commission) on July 17, 2002, began commissioning activities in early spring 2003, and began commercial operation on June 1, 2003.

PREVIOUSLY APPROVED AMENDMENTS

On March 4, 2003, GWF submitted a request to substitute the permanent water/wastewater treatment system at TPP with a portable treatment system. This modification was processed as an Insignificant Project Change.

On July 23, 2003, the Energy Commission approved an amendment to allow GWF to reduce PM10 emission limits at TPP by 68 percent. This reduction subsequently lowered the amount of PM10 emission reduction credits that GWF was required to surrender to the District to mitigate the project's PM10 emission impacts. At the same time, the Energy Commission approved modifications to clarify and simplify the methodology for tracking and reporting emissions during startups and shutdowns and eliminate the restriction on the number of startups and shutdowns.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

The San Joaquin Valley Air Pollution Control District (District) issued a final Authority to Construct (ATC) for the new engine on September 11, 2003 (District 2003b). The ATC was accompanied by a full engineering analysis (District 2003c & 2003d) and concluded that the change was in compliance with all District Rules.

All other applicable LORS are the same as those identified in the original GWF Tracy Peaker Project analysis.

ANALYSIS

The proposed new generator uses a "cleaner" diesel engine, which produces fewer emissions on a grams-of-pollutant per horsepower-hour (g/hp-hr) basis. AIR QUALITY Table 1 presents the proposed emission limits reductions.

AIR QUALITY Table 1
Proposed Emission Limits Reductions
(grams per horsepower-hour, g/hp-hr)

Pollutant	CEC Condition of Certification	Original Limit (g/hp-hr)	Proposed Limit (g/hp-hr)	Decrease
NO_x	AQ-71	5.09	4.69	(0.4)
CO	AQ-72	1.13	0.12	(1.01)
VOC	AQ-73	0.14	0.04	(0.1)
PM10	AQ-74	0.13	0.029	(0.101)

Source: GWF 2003a, Table 1: Summary of Requested Changes to Air Quality Conditions

However, since the proposed engine has a larger capacity (greater horsepower), the potential to emit some pollutants calculated on a pounds per hour basis would increase due to the horsepower differential, while others would decrease. AIR QUALITY Table 2 presents the projected maximum short term potential to emit from both the originally permitted engine and the proposed new engine.

AIR QUALITY Table 2
Projected Maximum Potential to Emit Changes
(pounds per hour, lb/hr)

Pollutant	Original Potential to Emit	Proposed Potential to Emit	Change
NO_x	4.287	4.860	0.573
CO	0.952	0.125	(0.827)
VOC	0.118	0.042	(0.076)
PM10	0.109	0.030	(0.079)
SO_2	0.137	0.158	0.21

It should be noted that the emergency generator's connected electrical load of 250 kW will remain unchanged. While AIR QUALITY Table 2 indicates a small increase in the theoretical potential to emit, the actual short-term emissions will likely decrease because the emission factors in g/hp-hr are all lower (AIR QUALITY Table 1) and the connected load of 250 kW remains unchanged. However, since there is no Condition of Certification limiting GWF's connected emergency electrical load to 250 kW, the above potential to emit is the theoretical maximum.

The original Condition of Certification AQ-68 limited the operation of the emergency generator to less than 11 hours per day. This condition was deemed necessary by the District to ensure there would be no potential PM10 impact exceeding 5 $\mu g/m^3$, the 24-hour PM10 Prevention of Significant Deterioration (PSD) significance threshold. Based on the

lower PM10 emissions rate of the proposed emergency generator, the District has approved the removal of the daily operations limit and TPP requests a similar deletion of Energy Commission Condition of Certification AQ-68. In addition, though TPP has not requested a modification of the annual hours of operations specified in Energy Commission Condition of Certification AQ-69, the new emissions rates yield a minor change to the theoretical maximum annual emissions. AIR QUALITY Table 3 presents the overall theoretical change in the potential to emit with the installation of the larger proposed engine, on an annual basis. These values are presented as theoretical because unless there is an emergency event at the facility, the generator will actually operate for less than an hour each week for testing purposes only.

AIR QUALITY Table 3
Projected Change in Project Annual Potential to Emit (pounds)

Pollutant	Original Project Potential to Emit	Annual Change	Total Proposed Potential to Emit	Percent Change
NO_x	306,920.0	120.0	307,040.0	+ 0.04%
CO	26,712.0	(165.4)	26,546.6	- 0.62%
VOC	15,476.0	(15.3)	15,460.7	- 0.10%
PM10	53,332.0	(15.9)	53,316.1	- 0.03%
SO_2	6,840.0	4.2	6,844.2	+ 0.06%

A review of the original air quality analysis in the Commission Decision (CEC 2002) indicates that the modeled maximum criteria pollutant impacts for both NO_x and SO_2 are well below the state standards, even when added to the maximum background levels and modeled cumulatively (CEC 2002, Air Quality Tables 20 & 29). The increased NO_x and SO_2 emissions from the new generator will thus, not cause a new violation or contribute to an existing violation of either pollutant. However, as precursors to the nonattainment pollutants PM10 and ozone, any increased NO_x or SO_2 emissions must be mitigated.

In February 2003, based on trading ratios of between 1.2:1 and 2.5:1, GWF surrendered a total of 201.07 tons of NO_x Emission Reduction Credits (ERCs) and 8.40 tons of SO_2 ERCs to mitigate the facility potential to emit of 153.46 tons NO_x and 3.42 tons SO_2, per AQ-62 and AQ-63. Thus, the originally provided mitigation package fully mitigates this minor increase of both NO_x and SO_2 emission.

CONCLUSIONS

Staff has analyzed the requested changes to the Tracy Peaker Project Conditions of Certification and concludes that there will be no significant air quality impacts associated with approving the requested changes to the Condition of Certifications. Staff concludes that the proposed changes are based on new information that was not available during the original licensing proceedings and that the proposed changes retain the intent of the original Commission Decision.

Staff supports the modifications to the Conditions of Certification listed below.

PROPOSED CHANGES TO THE CONDITIONS OF CERTIFICATION

Changes are proposed to Conditions of Certification AQ-68, AQ-71, AQ-72, AQ-73, AQ-74 and to the equipment description immediately preceding Condition of Certification AQ-64. ~~Strikethrough~~ indicates deleted text and **bold underline** indicates replacement or new text. No changes are proposed to any Condition of Certification verification. Proposed changes are as follows:

District Permit No. UNIT **N-4597-4-0 - 471** ~~N-4597-3-0 - 382~~ HP CATAPILLER MODEL **3456 DI TA AA** ~~3306 ATAAC~~ DIESEL-FIRED EMERGENCY IC ENGINE POWERING A **300** ~~250~~ kW ELECTRICAL GENERATOR.

AQ-68 **(Deleted)** ~~Operation of the engine shall not exceed 11 hours per day. [District Rule 2201]~~

AQ-71 NO_x emissions shall not exceed **4.69** ~~5.09~~ g/hp-hr. [District Rule 2201]

AQ-72 CO emissions shall not exceed **0.12** ~~1.13~~ g/hp-hr. [District Rule 2201]

AQ-73 VOC emissions shall not exceed **0.04** ~~0.14~~ g/hp-hr. [District Rule 2201]

AQ-74 PM10 emissions shall not exceed **0.029** ~~0.13~~ g/hp-hr based on U.S EPA certification using ISO 8178 test procedure. [District Rule 2201 and 4102]

REFERENCES

California Energy Commission (CEC) 2002. Commission Decision on the Tracy Peaker Project, July 2002.

GWF Energy, LLC (GWF) 2003a. Tracy Peaker Project (01-AFC-16), Petition for Minor Air Quality Amendment. September 2003.

San Joaquin Valley Air Pollution Control District (District) 2003b. Authority to Construct (Permit No. N-4597-4-0). September 11, 2003.

San Joaquin Valley Air Pollution Control District (District) 2003c. Application Review, Tracy Peaker Power Plant (Application No. N-4597-4-0). July 23, 2003.

San Joaquin Valley Air Pollution Control District (District) 2003d. Memorandum from Kathi Crump, AQS, to Nick Pierce, AQE, re: AAQA and RMR Modeling Results for GWF Energy (N-4597-4-0). July 2, 2003.